

# Operational Description for PC-503

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## Summary

This document contains the operational description for the TI CC2520 based radio design implemented in PC-503. Below is the complete functional block diagram for the PC-503.

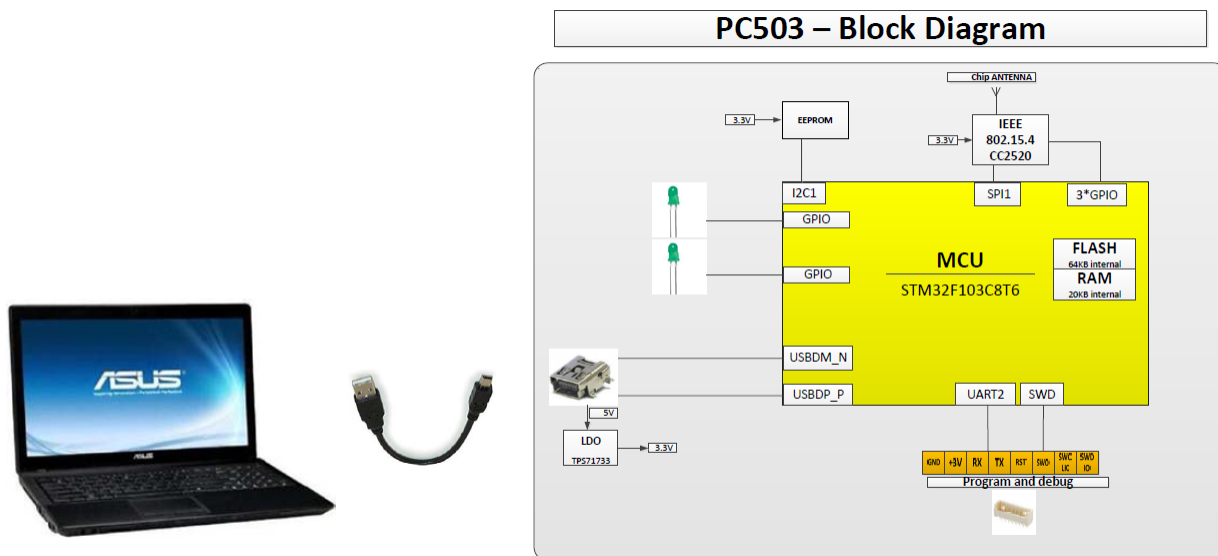
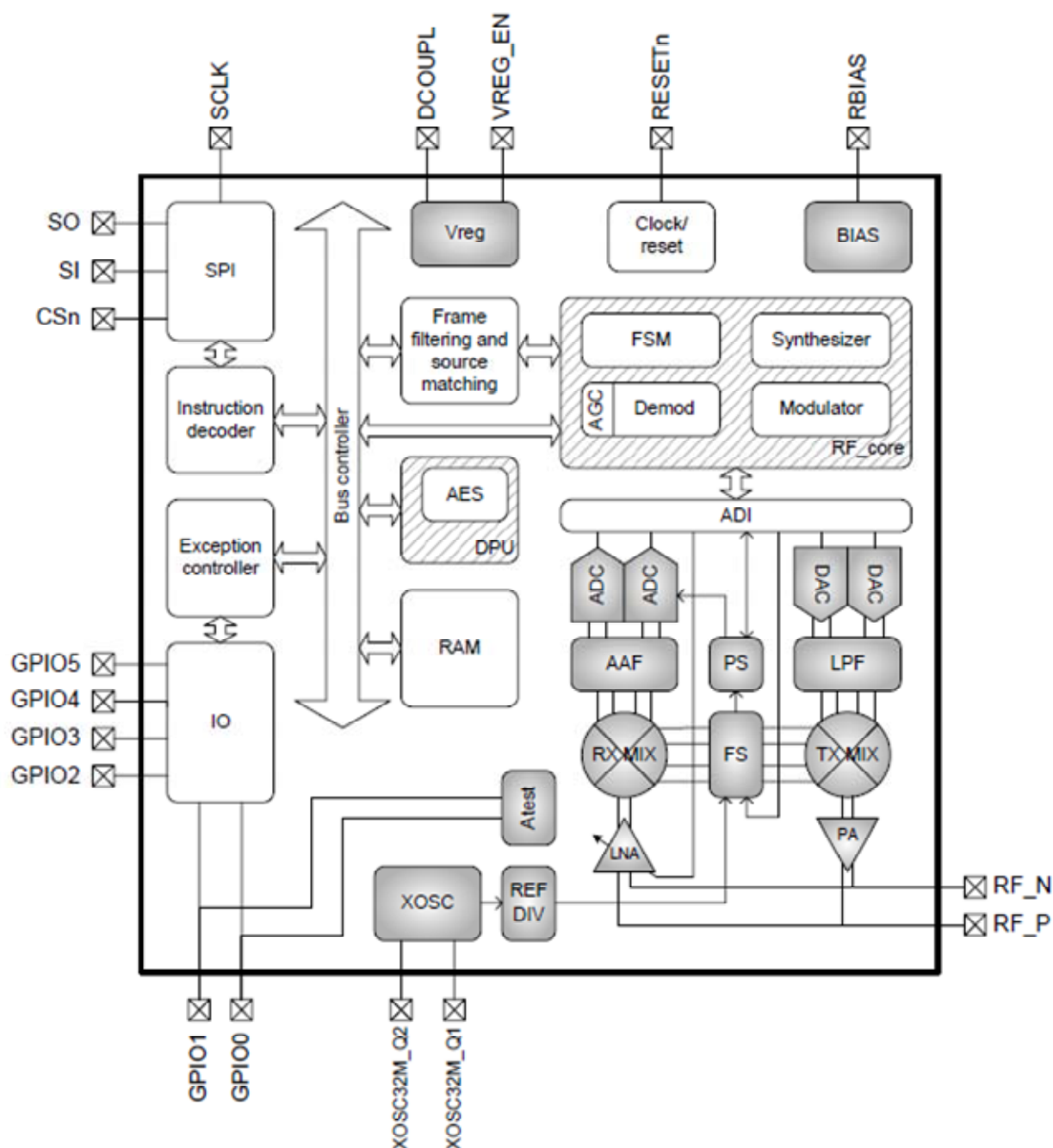


Figure 1 PC-503 block diagram

As shown in above diagram PC-503 communicates to laptop or ENGINN/INNTTOOL application on PC via USB. Product comes with mini-USB cable which can be used to connect to laptop or PC running ENGINN or INNTTOOL application.

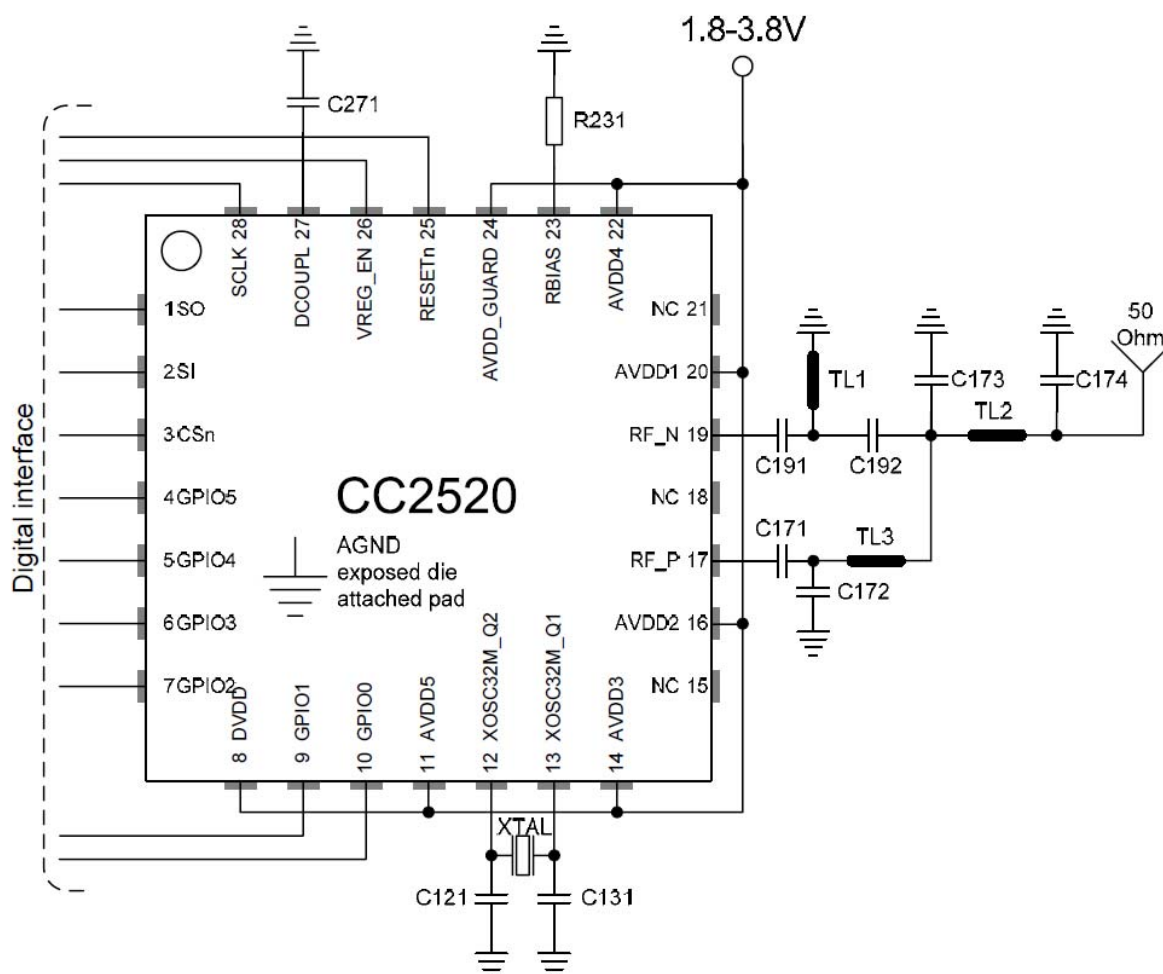
## IEEE 802.15.4 Radio

PC-503 uses TI's CC2520 transceiver to send and receive data. The CC2520 is IEEE 802.15.4 RF transceiver for the 2.4GHz unlicensed ISM band. Johnson Technology's 2450AT43B100 SMT antenna is used with CC2520 IC. Below is the functional block diagram for CC2520 transceiver.



**Figure 2 CC2520 block diagram**

The CC2520 circuit is controlled by an STM32F103C8T6 on PC-503. Host microcontroller (STM32F103) connects to CC2520 via SPI and few GPIO pins. Host microcontroller will send instructions to the CC2520 to send and receive data. Below diagram provides application circuit for CC2520 radio.



**Figure 1 Application circuit for CC2520**

RF input/output in above circuit is high impedance and differential. Balun is implemented using external discrete L-C components. This circuit presents optimum RF termination to CC2520 with a 50 ohm load on the antenna connection.

## Document Information and Revision History

Author: Ravi Sagar  
 File:  
 Date: Wednesday, October 11, 2017

| Document   | Location    |
|------------|-------------|
| 10/11/2017 | First Draft |
|            |             |